FOREIGN AGRICULTURE

Sheep herd, India

India's Best Crop Year
World Cotton Today

May 31, 1976

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This week's cover:

In Rajasthan, India, a flock of exotic sheep move to a protected grazing area. India's exports of raw wool and woolen manufactures have expanded in the past decade. This year's improved feed conditions could be the basis for expansion of sheep numbers and wool output.

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India's Crops Setting Record in 1975/76

By IVAN E. JOHNSON
U.S. Agricultural Attaché
New Delhi

THANKS TO last summer's generous monsoon rains, Indian agriculture is winding up a banner 1975/76 (July-June) season, with the all-important foodgrain crop poised to climb nearly 3 million tons above the 1970/71 peak of 108.4 million metric tons.

India also has seen some easing of the severe recession-inflation syndrome that has stifled economic growth in the past few years. And—in view of the good food and export crops this season—the country may be able to reduce the huge deficit in its trade balance.

This trade balance plunged from a surplus of around $133 million in 1972/73 (April-March) to a deficit of $1.45 billion in 1974/75, largely in response to rising raw material prices—especially for petroleum and fertilizer—and expanded foodgrain imports. Only through heavy external assistance was India able to cover the deficit and maintain its foreign exchange reserves at around $1.4 billion.

In terms of agricultural trade alone, however, the country fared rather well. Larger sales of sugar, tobacco, tea, and other products boosted such exports by a third to $1.53 billion in 1974/75, while farm imports rose 22 percent to a little over $1.2 billion. Agricultural products last year thus accounted for 37 percent of India's total exports and 22 percent of its imports.

The country hopes its agricultural exports will score further gains in 1975/76 and thus help reduce the overall trade deficit. A 15 percent expansion in 1975/76 exports is seen by the Indian Institute of Foreign Trade, although declining unit value and a below-target performance in the first 6 months of the year indicate that this gain may not be achieved.

At the same time, the Government hopes to keep calendar 1976 spending for the three major imports to the following levels: Petroleum, $1.5 billion (against $1.55 billion in 1975); foodgrains, $800 million ($1.1 billion); and fertilizer, $500 million ($700 million).

Those large 1975 purchases of grain—mainly from the United States—made India one of the top U.S. farm markets last year. U.S. farm sales soared to a record $760 million last year—up 67 percent from 1974's and 41 percent from the previous high of $539 million in 1966.

Wheat and grain sorghum alone accounted for $658 million of the 1975 total, or 72 percent more than in 1974. Sales for cash stood at $572 million, with the remaining $188 million including concessional sales of wheat under Title I of P.L. 480 and food donations under Title II.

Whether this U.S. trade expansion will be sustained beyond 1976 depends on the performance of India's upcoming summer monsoon and on India's success in rebuilding grain stocks. After seeing these stocks drop to a recent low of 2.4 million tons in early 1975, India began to rebuild reserves, turning to the import market for much-needed grain and stepping up domestic procurements following last fall's bumper harvests. As a result, stocks as of January 1, 1976, were up to 7.5-8 million tons and efforts continue to reach the Government goal of 12 million tons in the next 2-3 years.

The aim is to guard against future grain shortfalls while also improving the Indian diet, which continues inadequate in the face of a 2 percent yearly population increase.

For even this season, with crops at record highs, per capita consumption of foodgrains is 8 percent below the record 439 pounds reached in 1970/71. (Similarily, population pressures have caused per capita real gross national product, (GNP) to lag, with 1974/75's 1 percent below 1970/71's.)

The 1975/76 agricultural expansion, meantime, is giving a much-needed boost to an economy that still counts on agriculture to produce nearly half its GNP, 37 percent of exports, and 70 percent of jobs. Real GNP growth this year is pegged at 4-5 percent,

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Far left: Punjabi farmer displays an ear of hybrid corn. Above: In Gujarat, a tobacco grower examines his plants. Near left: grading wool in Jaipur. As a result of good food and export crops this year, India may be able to trim its food imports and thus reduce its trade deficit. Some rebuilding of grain stocks may be possible.

compared with 5 percent in 1975 and only 2 percent in 1974.

Inflation has subsided from the rampant rate of the past few years; in fact the wholesale price index actually declined 6.5 percent last year, with foodgrains off 20.6 percent compared with their meteoric rise of 81 percent between 1972 and 1974.

As always, these positive factors must be weighed against the many problems that plague India. The nation continues heavily dependent on outside assistance, with the World Bank and individual countries expected to supply $1.8 billion in fiscal 1976 and external debt repayment now running over $800 million a year. Recently, much of this assistance has gone toward covering India's huge trade deficits. Total industrial growth lags well behind goals—1975/76's estimated industrial expansion of 3.4-5 percent is only half the 8 percent targeted.

And skepticism abounds over the possibility of short-run success from programs like land reform, rural credit, and population control. (However, awareness of India's food-population imbalance has grown to the point where many Indian states are considering mandatory population control programs, such as that recently proposed by Maharashtra.)

Meanwhile, the agricultural growth rate will have to be raised to 4-5 percent per annum if India is to make headway against poverty and unemployment while meeting the increased food needs of its people.

In 1975/76, that necessary growth rate is being achieved, with output estimated 5-7 percent above the previous record set in 1973/74 and 6-8 percent above output in 1974/75. Contributing to the expansion are record crops of rice, sorghum, and peanuts, and a near-record output of tea. Production of sugarcane is expected to remain at about last year's level, while that of raw jute may be moderately lower.

THESE INCREASES reflect last summer's excellent monsoon rainfall, which had a highly favorable effect on the kharif (fall- and winter-harvested) crops and provided ample soil moisture for the seeding of rabi (spring-harvested) crops.

Also, in contrast to the previous year, fertilizer supplies were adequate during 1975, although the use of phosphorus and potassium during the fall was below expectations and less than in 1974 in several states. A cut of less than 10 percent in the prices of various fertilizers during July 1975 apparently failed to motivate many farmers to increase usage, while a second—in December—cut in prices of selected imported fertilizers came too late to have any significant impact on 1975/76 production.

Foodgrains. The excellent summer monsoon encouraged Indian farmers to devote larger areas to kharif foodgrains. As a result, some senior Government officials have estimated that this year's kharif harvest reached 70 million tons, although 68-69 million seems more likely. This would be an increase of about 14 percent over the 1974/75 kharif production of 60.3 million tons.

Rabi foodgrain crops likewise were seeded under very favorable conditions, although delayed and less than normal winter rains in some areas have caused concern. Because of this lack of rain, rabi foodgrain production this season may fall somewhat below previous estimates to total perhaps 41-42 million tons, compared with 40.8 million produced in 1975.

These two estimates together indicate that total foodgrain production in 1975/76 may hit 111 million tons. While under official predictions of 114-115 million, this is still an alltime high and nearly 10 million tons above the drought-reduced crop of 1974/75.

Indian foodgrain imports in calendar 1976 are estimated at 5.5-6.0 million tons, compared with about 7.4 million in 1975 and 4.9 million in 1974. However, these imports could surpass 6 million tons should world grain prices be favorable or the rabi crop not fulfill ear-

lier expectations. Once again, the bulk of these grains is expected to move from the United States, which supplied India with 4.8 million tons in calendar 1975 and has sold it so far 4 million for import in calendar 1976.

As a result of this large grain trade, India in fiscal 1975 was the No. 1 cash market for U.S. wheat, and this year it will be exceeded only by the USSR.

Fats and oils. India is bringing in a record harvest of oilseed crops this season, with total output estimated up to 13.6 million tons from 11.9 million in 1974/75. Area, on the other hand, has remained about unchanged from last season's 25 million hectares (1 hectare=2.471 acres).

Virtually all the gain has come in output of peanuts, the major crop, which is estimated up to 7 million tons (in shell) from just under 5 million last season. Cottonseed output is estimated at last season's level of 2.5 million tons, and mustardseed output is estimated down to 1.8 million tons from 2.2 million.

As a result of these abundant supplies, the Government has temporarily suspended vegetable oil imports, although about 12,000 tons of rapeseed oil arrived early in February under Canadian aid. Also, the Vanaspati Manufacturers' Association of India reports that about 15,000 tons of palm oil will be imported during March-April, while the country will take 10,000 tons of Sudanese peanut oil to neutralize its credit balance with Sudan.

On the other hand, exports of handpicked select peanuts this year are seen reaching a new record—by January, 100,000 tons already had been shipped with another 100,000 expected to move by yearend.

Cotton. Conflicting reports have come in on Indian cotton ouput. Earlier, the commercial crop had been expected to reach an alltime high of 6.2 million bales or more (480 lb net), up 500,000 bales from 1974/75. But prolonged rains in the western cotton region and cyclonic storms in Tamil Nadu have since reduced prospects. Current estimates of commercial production range from 5.3 million to over 6 million bales, the latter equal to the 1971/72 record.

India nonetheless continues in a surplus position for medium to medium-long staple cotton after achieving self-sufficiency in these types last year. As a result of the production gain, plus a stock buildup last season, India in 1975/76 expects to export over 200,000 bales of medium to medium-long staple cotton for the first time, in addition to normal exports of a little over 150,000 bales of short staple (desi) cotton. This compares with exports of only 80,000 bales of desi cotton in 1974/75, when world demand was depressed.

Imports likewise will gain sharply—to 180,000 bales from only 50,000 in 1974/75—as India fulfills bilateral trade agreements with Sudan and Egypt.

Jute and mesta. Dry weather during the January-March 1975 sowing period curtailed 1975/76 jute area, while floods in many producing states suppressed yields. Combined production of jute and mesta is estimated at 5.5-5.8 million bales of 400 pounds, compared with 5.8 million in 1974/75.

Problems also have abounded on the jute manufacturing front as a result of depressed world prices and stiff competition from Bangladesh jute and goods as well as synthetics. These difficulties will be reflected in export earnings from jute goods, estimated to fall to $282 million from $369 million in 1974/75. Demand in 1975/76, however, could be bolstered by the upturn in U.S. housing starts and consequent greater demand for carpets.

Sugar. Plantings of the 1975/76 sugarcane crop were completed under favorable weather conditions. Despite some problems, including flooding and inadequate sunshine, cane output in 1975/76 is estimated at 140 million tons—above last year's but under the target of 145 million.

Total sugar production by mills in 1975/76 is estimated at 4.4-4.6 million tons, compared with the record 4.8 million achieved in 1974/75, when processing ran at an astounding 108 percent of capacity.

Since last year, sugar has been India's top agricultural export, earning $424.6 million in 1974/75 or seven times the $57.2 million of 1973/74. The anticipated slight decline in production this season is not expected to reduce availability of sugar for export because of the large carryover of stocks from last season. Volume of these exports is expected

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India's Foodgrain Consumption Rising

After enduring 4 years of foodgrain shortages, high prices, and distribution tieups, Indian consumers in 1976 should be eating about as well as they did in 1971—a record year for food consumption.

A combination of record crops and large grain imports (see preceding article) has boosted the country's foodgrain supplies from the reduced levels of the past 2 years. However, with 52 million more people now than 4 years ago, India still does not have an overabundance of food. Also, stocks held by private traders and urban households are probably about 4-5 million tons under those of last year.

The expected 4 percent gain in India's per capita daily food use this year will put it near the 1971 peak of 2,170 calories and 55 grams of protein. As usual, cereals will account for a disproportionately large share of this—about 1,460 calories or 100 calories more than in 1975.

India's total use of foodgrains during 1976 may range between 116 million and 118 million tons, compared with 107 million in 1975, with consumption of rice up 5 million tons, to 45 million, from the depressed 1975 level. At the same time, Government-held grain stocks at the end of 1976 should rise several million tons above the 8 million tons of January 1975 to surpass the previous record of 8.9 million tons held in July 1972.

The resurgence in rice use will allow this product to account for about a third of India's total grain caloric intake, compared with 31 percent last year and the 1959-61 peak of 32.9. Indian consumers in cities and deficit areas seldom have all the rice they desire—even in the few years when favorable monsoon weather brings high output of this crop. Thus, in good years like 1976, the use of rice increases at the expense of other grains.

This tendency will be further strengthened in 1976 by the country's shortfall in production of pulses and some of the coarse grains. Also, consumers must now pay a premium for pulses—over $350 per ton, compared with about $250 for rice sold at fair-price shops and $300 for rice in the open market.

Daily caloric intake of pulses declined from a high of 248 calories per day in 1959-61 to about 112 calories in 1975 and will probably fall further in 1976 unless sizable imports are arranged.—JOHN B. PARKER, JR., ERS

WORLD COTTON TODAY

• A decline in world production in 1975/76 of more than 9 million bales from last season's record 64.9 million to a currently estimated 55.4 million.

• An anticipated pickup in world consumption of over 3 million bales to around 62.9 million this season.

• Smaller 1975/76 production and higher consumption will reduce world stocks by over 7 million bales to just under 24 million.

• The turnaround in world supply and demand occurring this season has stimulated a world price response of over 20 cents per pound since the low point in January 1975.

By JOSEPH H. STEVENSON, *Foreign Commodity Analysis, Cotton; Foreign Agricultural Service*

THE OUTLOOK FOR cotton is now brighter than at any time since the onset in early 1974 of a prolonged world textile recession that dealt a severe blow to world cotton production, consumption, trade, and prices. Gradual economic recovery in the industrial countries is encouraging rising consumer demand for textiles.

Higher cotton consumption during 1975/76 and sharply reduced cotton production will eliminate the record surplus cotton supplies carried over from last season, when sharply waning demand declined well below record crops.

World cotton area will increase in 1976/77. This year cotton is in a stronger competitive position in relation to other crops. Prices of cotton are up and demand is rising. But cotton plantings overseas will not duplicate the 16 percent rise expected in the United States, based on April 1 intentions.

Last January FAS forecast a 4 percent increase in 1976 foreign cotton area, based on reports from U.S. Agricultural Attachés in 16 foreign producing countries. According to March reports from those countries, foreign area could go up 5 percent to around 68 million to 69 million acres, about unchanged from January projections. Foreign planting decisions will probably be influenced by such factors as relative support prices for cotton and food crops, weather, and disappointment over 1975/76 yields that were lowered by insects, weather and reduced inputs. Also to be kept in mind is that 40 percent of the acreage reported on is in the Southern Hemisphere where cotton will not be planted until later in 1976.

According to March reports, 1976 cotton area in the 16 countries surveyed will rise around 5 percent. In Mexico, 1976 area could rise perhaps 12 percent, but will still be the second smallest in recent years, largely because of Government policy to increase food crops. The Central American countries could increase planting 13 percent or so.

In South America, Brazilian acreage may increase 6 percent or more, but this projection could change before next fall when the large southern crop is planted. Satisfaction over recent prices could encourage Colombian farmers to raise acreage by one-fourth to a possible record, but in Peru, area is expected to decline some.

Shifting to the Middle East, little if any increase in area is expected overall, although individual country reports in that region are mixed.

Area planted to cotton in Turkey could decline 10 percent largely because attractive wheat support prices are shifting some nonirrigated land from cotton in the south. In Syria, a little irrigated land might be diverted to food crops. But in Iran, cotton area is now expected to rise by one-third to about normal. Greece expects to up area 12 percent.

In Pakistan, indications are that area may rise slightly to equal the most recent 5-year average of 4.8 million acres. Egypt has allocated 1.4 million acres to cotton in 1976/77, the same as last season, but Sudan's decision on whether to divert additional cotton land to peanuts is still unknown. In the USSR—currently the world's largest cotton producer—cotton area is forecast to rise again by 1 percent.

This season cotton production was reduced by smaller area and weather-related losses that drove yields down in many countries. Assuming a return to a recent 3-year average yield in 1976/77, foreign production could recover even more than acreage—perhaps by around 8 to 10 percent. This would put 1976/77 foreign outturn at around 50.8-51.8 million bales, up 3.7-4.7 million from 1975/76, but stil 2-3 million below the 1974/75 record of 53.4 million bales.

Recovery in foreign production in 1976/77 is expected to be just that and not a significant upward trend. In the past 5 years, foreign increase has been mostly in the USSR. Foreign non-Communist area actually trended slightly down in that period. Although better technology in some countries has raised yields and therefore production, there are signs that the strong upward thrust in yields may have moderated.

Another major factor now influencing foreign non-Communist cotton production is potential returns for cotton relative to other crops. Since the mid-1960's foreign non-Communist countries as a whole have increasingly responded to prices and price relationships, although not to the extent of U.S. farmers. This has meant larger acreage fluctuations.

Because economies in the United States and in most industrial countries are picking up, consumers are buying more textiles. But inflation, recession, and unemployment are by no means completely licked. At the present time, it is expected that rising demand will not turn into a runaway boom in 1976/77. What we do expect next season is a trendline increase in consumption overseas to around 56.2-57.2 million bales. Among foreign countries, growth in consumption will probably again be proportionately largest in foreign non-Communist cotton-exporting countries and smallest in Europe.

In the past 10 years, U.S. consumption has declined over 2 million bales while foreign consumption has risen over 10 million. The fastest aggregate growth has occurred in foreign non-Communist exporting countries. With a labor cost advantage in textile manufacturing, those countries in recent years have exported more and more of their cotton in the form of textiles. The decline of textile industries in several European countries is also a significant development. Higher textile exports

COTTON USE BY MAJOR U.S. CUSTOMERS

Cotton consumption in foreign non-Communist net importing countries —which include the major U.S. customers—has been mixed since 1966/67 for a net gain of only 1.1 million bales. A long-term decline in cotton use has occurred in the nine EC countries of Western Europe. And in Japan, the largest single U.S. customer, cotton use has gained very little in recent years.

On the other hand, textile production and cotton use have rapidly expanded in several Far Eastern markets and plans are for more expansion, although perhaps at a lower pace.

Cotton consumption in five of those countries, Korea, Taiwan, Indonesia, Thailand, and Hong Kong has gained over 1.5 million bales in the past decade. Korea and Hong Kong are rapidly approaching 1 million bales of consumption each annualy and Taiwan is not too far behind.

Those countries and Japan will continue as the most important U.S. markets. Almost 90 percent of U.S. cotton exports so far in 1975/76 have gone to Far Eastern destinations.

In 1976/77, Hong Kong and Taiwan should fully recover prerecession levels of consumption, and Republic of Korea consumption could reach a record 1 million bales. Japan's growth will be slower, partly because of increased textile imports from neighboring countries.

In the United Kingdom, a generally stagnant economy is depressing domestic demand. In France and Germany, slow growth can be expected, but not all ground lost during the recession will be recovered in 1976/77. Growth in Italy will be a little stronger because cotton goods are more competitive with synthetics and imports there. The export-based industries of Spain and Portugal are likely to advance also if their access to foreign markets is not curtailed.

from the cotton producing countries to Western Europe, Japan, and Canada compete with U.S. raw cotton and textile exports.

Unless cotton production in 1976/77 rises more than current projections indicate, or demand turns sluggish, foreign stocks next season could decline 1 million bales below the 20.5 million estimated for July 31, 1976. Stocks on that order would represent about 36 percent or 4.3 months of projected 1976/77 consumption, slightly below average.

The unusually large carrying stocks on August 1, 1975, represented nearly 6 months of mill consumption. With a 5.4-million-bale foreign stock drawdown in 1975/76, there will be a sharp reduction in uncommitted foreign supplies going into 1976/77. Demand next season will have to be met in large part by higher U.S. and foreign production, and it appears likely there may be a similar situation going into 1977/78.

At this time there seems to be little question that foreign supplies next season wil be tight. Possible areas of adjustment to such a situation could include a reduction in total textile demand, a shift to manmade fibers, a larger stock drawdown and an even tighter supply position than now expected—or larger plantings than now forecast, especially in the Southern Hemisphere.

In 1976/77 there should be some transfer of stocks from foreign exporting to importing countries on improved demand. Net foreign-stock rundown will greatly depend on government policies in exporting countries. During the 1973/74 demand boom and price run-up, stocks in exporting countries actually rose as governments in some countries limited exports in order to assure domestic mill requirements and maximize foreign exchange earnings and farm income. Also, these countries now have a higher stock requirement due to expanded mill consumption.

Rising demand should boost world exports in 1976/77. The main question mark is the size of potential cotton purchases by the People's Republic of China. The PRC's imports have fluctuated very widely—from a high of nearly 2 million bales in 1972 and 1973 to a recent low of a few hundred thousand bales this season. At this time, FAS does not think China will require the high-volume imports of 1972 and 1973. However, an increase in Chinese imports next season could push world exports several hundred thousand bales or more above the 18 million currently estimated for this season. This would be well below record world exports of 20.7 million bales in 1972/73 during the worldwide commodity boom.

Of primary importance is the size of foreign demand for U.S. cotton. With little or no apparent surplus in foreign supplies and increasing consumption next season, demand for U.S. cotton should be stronger.

U.S. exports in a given year are usually about equal to the difference between foreign consumption and production, plus or minus foreign stock changes. Foreign consumption in 1976/77 could be 5.3-6.3 million bales above foreign production. Foreign stocks could cover some of the projected 1976/77 foreign cotton deficit, but probably not more than 1 million bales. Accordingly, export demand for U.S. cotton could rise significantly to 4.3-5.3 million bales. However, the availability of U.S. supplies could limit exports to 3.5-4.5 million bales. U.S. exports this season are currently estimated at 3.5 million.

Next season, foreign non-Communist exporting countries will probably ship about the same amount of cotton as they did this season. Depending on the success of its 1976/77 crop, the USSR will probably increase shipments some. Soviet cotton exports now account for about 20 percent of world trade, and in 1975/76 the USSR may be the world's largest cotton exporting country.

In recent years the USSR has significantly increased its share of major non-Communist markets. By 1974/75 it had more than tripled its exports to around 18 percent of the shrinking West European market, while the U.S. share there declined somewhat to 11 percent in 1974/75 and will likely fall farther this season.

The USSR doubled its share of the Japanese market to 16 percent last season, although not at U.S. expense. Fully one-third of Japanese imports of 3.2 million bales in 1974/75 were from the United States. Unfortunately, the U.S. share of the Japanese market also will be lower this season.

One of the most significant indicators that cotton has weathered the crisis of the past year and a half is the strong upward trend in world cotton prices since late 1975.

From their low point in January

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Dam building slows

Morocco's Irrigation Plan Stresses Land Development

By VINCENT BIOLLEY
Office of U.S. Agricultural Attaché
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DESPITE MOROCCO'S target of having 1 million hectares (1ha=2.471 acres) under irrigation before the year 2,000—a goal set by King Hassan II—the emphasis during the 1973-77 plan has been on land development, and dam building—for the time being—has been deemphasized.

The 1968-72 plan called for the building of seven major dams that would add 4 billion cubic meters of water to the country's stored water reserve. During the current plan, however, only two new dams are actually to be built and three started in earlier years are to be completed. By 1984, it is forecast that 30 dams will have been built, of which 20 will be major structures, mostly in the north-central region, whose major crops are sugarbeets, sugarcane, and tomatoes.

The Moroccan Government has spent $685 million for major dams during the three 5-year economic plans between 1963 and 1977 with $150 million earmarked for the current 5-year period. These dams, plus their related irrigation systems, have cost about $1.5 billion and expenditures for irrigation water facilities and land development programs in irrigation districts will total $750 million during these plans. Included in the total is over $500 million to be spent during the 1973-77 period.

The objective of Morocco's irrigation program is to achieve self-sufficiency in food production, thereby eliminating imports that have provided about half of its wheat, sugar, cotton, vegetable oil, and oilseed requirements.

Moving toward this goal, in the first 11 months of 1975, sugar, wheat, and vegetable oil imports were only 22 percent of total Moroccan imports.

Only 12 years ago, Morocco imported all of its sugar. It now produces more than 50 percent of its requirements in the nine sugarbeet mills that have been opened since 1962. Six more mills are to be opened in the near future. And because the irrigation plan has revived sugarcane plantings, output has reached the point where it supports two cane sugar mills. The second one started production early in 1975. Also, the beet pulp, molasses, and other byproducts from these mills are used for cattle feeding. In the past, many cattle suffered from malnutrition, especially in the summer when forage was scarce. This is still the case in dry years.

Cotton gins have been erected to handle the increase in Morocco's cotton output and packing stations will be established to ready citrus fruit for export. Other agribusinesses will undoubtedly follow the successful lead of those already established, with especial attention being given to beef producing complexes.

The Government expects these businesses to create thousands of jobs in rural areas where about 65 percent of the country's 17 million people live.

Morocco's position to the windward of the Atlantic Ocean—and with the Atlas mountains along the south and east shielding its agricultural plains from drying desert winds—gives it the best potential for utilizing surface and ground water resources of any country along the northwest coast of Africa.

Morocco has 7.9 million hectares of agricultural land out of a total area of 446,500 square kilometers (1 km^2= 0.386 mi^2), with 90 percent of the farmland used for grain production and slightly over 10 percent irrigable the year round. Of the total irrigated area, 450,000 hectares are now being controlled by Government irrigation offices —315,000 hectares being watered from recently built facilities and about

Tomatoes (left) are a major crop in north-central Morocco, where about 20 dams will be constructed by 1984. Below, part of the irrigation system already in use.

107,000 hectares from older ones that can be improved under the irrigation program, plus other minor facilities.

Morocco's potential water reserves amount to about 16 billion cubic meters per year, but only about half this amount was actually used in 1972. Most of this went for irrigation, but some was used in potable water systems. Government plans call for watering about 750,000 hectares of land from newly constructed facilities in the relatively near future which, with minor facilities, would make up 79 percent of the 1-million hectare goal. By 1977, at the end of the present 5-year plan, 500,000 hectares will be irrigated from modern facilities. Projected total use of water will amount to 10 billion cubic meters.

Morocco's agriculture is traditionally carried out on rainfed land (known as *boors*), where most field crops are raised and cattled grazed and on irrigated land (known as *seguia*). Water is fed from the northern slopes of the Atlas Mountains to fields in the coastal areas through underground ducts called *rhettaras*, stretching as far north as Marrakech and Benguerir. Water utilized by this traditional irrigating method also somes from streams running along *wadis* and from springs or other underground water sources.

"The objective of Morocco's irrigation program is to achieve self-sufficiency in food production. . . ."

In this irrigation system, each seguia —as the individual irrigation ditches or canals are known—is administered by a users' council. The council nominates a curator who acts as a referee to arbitrate conflicts over water rights. In turn, landowners cultivating crops along a seguia are responsible for maintaining, flushing, and repairing their respective sections of the channel.

The more modern irrigation practices usually encompass a number of 30-40-hectare irrigation blocks measuring not less than 400 meters in width, extending between parallel concrete waterways that have an average flow of 30 liters per second at the intake. Until recently, development programs had provided for an expansion of the land under irrigation by 23,000 hectares annually. In late 1974, King Hassan set the annual development rate at 45,000 hectares.

The newly irrigated acreage is mostly being watered by gravity systems, except for areas of light soil or broken land. It was decided early in the planning stages that because of the country's large pool of laborers and the relatively low cost of moving water via channels, the advantage of being able to put more water on the fields with less effort via sprinklers was of minor importance.

Moreover, there was only minimal grower acceptance of the sprinkler system of irrigation—one that was comparatively complicated and expensive, dependent as it was on imported equipment and spare parts.

At the same time, however, many farmers distrusted improved gravity irrigation techniques advocated by extension advisors. This largely accounts for the continued existence of traditional irrigation methods in many areas.

But because of interest by the country's more progressive farmers, an estimated 20,000 hectares are currently being watered by sprinkling systems. A total of 53,000 hectares will be sprinkled by 1980: 15,000 hectares in Loukkos, between 18,000 and 20,000 in Massa, and 20,000 in Doukkala. Future growth of sprinkled area will be slow and relatively small, compared with the growth of gravity irrigation—only about 30,000 hectares forecast in the next few years.

Morocco's National Office of Irrigation (ONI), a central authority operating under the Ministry of Agriculture, was founded in 1960 to administer the country's irrigation program. However, ONI—as had its predecessor agencies—proved to be less than fully effective and in 1966 enhanced authority was granted to regional offices. However, the functions of top-level decisionmaking and overall policy formulation remained in Government hands.

In 1966, nine irrigation perimeters (districts) were established under as many Regional Development Offices (ORMVA's). By 1974, 406,000 hectares of farmland were under irrigation. Seventy-four percent of this was land being irrigated by new ORMVA irrigation facilities and 26 percent by former public systems that had been put under the jurisdiction of the various regional offices.

It is forecast that by 1977 the amount of land being irrigated will increase to 500,000 hectares and the percentage of the total being watered by new irrigation facilities would increase to 85 percent, while the percentage of the total watered by former public systems would drop to 15 percent. By the end of the programs in the year 2,000, ORMVA-controlled land area will total 795,000 hectares.

A 10th ORMVA irrigation perimeter is scheduled to be developed in the Gharb Plain to encompass land irrigated with water stored behind the M'Jara dam across the Ouergha River. This project will bring 100,000 hectares under irrigation.

ORMVA duties are manifold. They include administering various land consolidation programs, building potable water and irrigation facilities, organizing and administering irrigation perimeters, setting crop-year objectives for farmers in the perimeters, proposing the terms of grower contracts for these farmers, and distributing seeds, fertilizers, pesticides, and other production inputs.

ORMVA's also provide farmers with the latest information about production techniques through various extension programs, make available farmer credit at low interest rates, provide bonuses for extra-large output, and subsidize various inputs, and—under some circumstances—grant farmers remission of certain fiscal obligations.

"By 1977, at the end of the present 5-year plan, 500,000 hectares will be irrigated from modern facilities."

Several semipublic land development companies in ORMVA irrigation districts managed land expropriated from foreigners (*colons*), at the moment being operated as State farms, but eventually to be distributed to farmers under the Agrarian Reform Act. The Office of Commercialization and Exportation —an official export marketing monopoly—sells a substantial part of the irrigation perimeter's agricultural production, output of which has risen markedly under irrigation.

Cotton produced on watered land is expected to go from 26,000 tons in 1971/72 to 59,000 tons in 1976/77, with a targeted production of 193,000 tons by the end of the program. Rice

output is expected to climb from 12,000 tons in 1971/72 to 50,000 tons next fiscal year and to 180,000 at plan's end. Irrigated cereal production growth is expected to go from 510,000 tons in 1971/72 to 630,000 tons by the year 2,000, while olive output is expected to climb from 167,000 tons to 490,000 tons by plan's end.

The use of modern irrigation techniques has had its best results in sugarbeet- and citrus-growing districts. Citrus production was 876,000 tons in 1971/72 and is expected to reach 2.5 million tons by the year 2,000. Sugarbeet and sugarcane production combined is expected to rise from 136,000 tons to 991,000 tons in same period.

MUCH OF THE CITRUS fruit from irrigated perimeters—as well as long-staple cotton and early vegetables—is earmarked for exportation. Although the area planted to cereals is due to shrink in favor of more rewarding industrial crops, a switch to high-yielding grain varieties should compensate for the reduced acreage. However, one problem the Government faces is to convince the average Moroccan farmer to deliver the surplus grain to mills since many of them have always considered cereal surpluses as a form of insurance against future want.

Little or no increase has been recorded in the production of irrigated forage crops, although area devoted to its output is targeted to rise 53 percent between 1971/72 and 1976/77, and is expected to rise another 218 percent by the end of the century.

A farmer who owns land in an irrigated perimeter can plant any crop he chooses but must agree to develop his land in accord with Government policies. He must also follow established agricultural standards by rotating crops, following prevalent irrigation patterns, as well as to try to upgrade production by employing proper breeding techniques. If he wants to get some official assistance such as improved seeds, fertilizer, or advance crop payments, however, he must sign a production contract binding himself to deliver a part of his crop to the regional irrigation office.

He must also pay a yearly irrigation water fee and must expend the equivalent of about US$360 per hectare for land development. However, exceptions are granted for farmers having plots of less than 20 hectares in irrigated perimeters and 5 hectare plots elsewhere.

Hog Numbers To Rise in 13 Producing Countries, Pork Production Will Slide

Despite an expected expansion in hog numbers in 1976 in 13 major pork producing countries,[1] their aggregate pork output will not equal the 1975 level, itself some 5 percent below the 1974 total. This drop in production and rising consumption may necessitate large net pork imports by some of these countries.

Hog numbers and slaughter levels fell in at least seven of these countries in 1975. In the Soviet Union the 1975 grain crop failure forced a rise in its hog slaughter and pork outturn, and hence sharply lowered hog numbers in January 1976. A 23 percent decline in hog slaughterings is expected in the Soviet Union in 1976 as a result of the attempt to increase hog inventories.

If the Soviet Union is excluded from the projected 1976 total, the remaining 12 countries will probably increase their slaughter and production by about 2 percent to 195-200 million head, and 14.6 million tons.[2] This is still 7 percent below 1974's slaughter level of 211.8 million head and 15.7 million tons for the same 12 countries.

Total 13-country 1975 pork production was 18.5 million tons, down 5.5 percent from 1974's level of 19.6 million tons. Pork output in the United States in 1976 is estimated at 5.2 million tons, up from 5.1 million tons a year earlier. That of the USSR is projected at 3.2 million tons, down from 4.2 million tons in 1975, and 3.9 million tons in 1974.

Following the United States and the USSR, the No. 1 and No. 2 pork producers, volumes of the other 11 major pork producers in 1976, (with 1975 volumes in parentheses), in thousands of tons, are expected to be: West Germany, 2,460 (2,454); France, 1,430 (1,405); Japan, 945 (905); the United Kingdom, 895 (842); the Netherlands, 860 (823); Italy, 799 (770); Denmark, 730 (740); Belgium-Luxembourg, 625 (600); Canada, 540 (533); and Ireland, 134 (112).

Past history and recent reports of the size of its domestic pork supplies suggest that the Soviet Union may have exported much of its increased pork production in 1975. As a result, the USSR's net pork trading position, in 1975, was probably a surplus of approximately 140,000 tons, bringing net imports for the 13 countries to a total of about 85,000 tons last year.

Excluding the Soviet Union, net imports of the remaining 12 countries were about 225,000 tons in 1975, 3 percent higher than the previous high in 1969 of 219,600 tons for the same countries.

Total breeding stock in the 13 countries at the beginning of 1976 was about 25.2 million head, up 6 percent from the total at the begining of 1975.

Preliminary data indicate that only the Soviet Union showed a decline in the number of breeding hogs in January 1976. The number of sows farrowed in the United States in 1975 was 9.9 million, down 16 percent from that of a year earlier, and the resulting pig crop for the year was 71.3 million, down 15 percent from the previous year's pig-crop total. The number of U.S. sows farrowed may approach 11.2 million in 1976, resulting in a pig crop of 80.2 million.

The number of pigs available for breeding in the Soviet Union was about 4 million head in 1975, but is expected to have dropped to 3.8 million at the beginning of 1976. However, because more pigs will probably be saved, the annual pig crop may increase by about 10 percent over 1975's total to 72.4 million in 1976.

The 1976 pig crop for the 13 countries is estimated about 290 million head, 8 percent above 1975's, but 2 percent below 1974's. Of the 13 countries, pig numbers were down in January 1976 in all but five—Japan, France, Ireland, Italy, and the Netherlands. The U.S. total fell from 55 million head in 1975 to an estimated 49.6 million head, while the Soviet Union's total dropped from 72.3 million head to 57.8 million.

Projections for the beginning of 1977 indicate that total hog numbers in the 13 countries, at about 204 million head, will be 7 percent above the beginning 1976 figure, but 3 percent below the beginning 1975 level.

—LARRY MARKS, FAS

[1] The United States, Canada, Japan, the 9 countries of the European Community, and the USSR. [2] All tons are metric. Note: For additional data see FAS circular FLM 3-76, "World Pork Outlook."

Finland's Farm Leadership Concerned Over Surpluses

THE MAJOR concern of Finland's agricultural leadership today is surpluses and what to do about them.

Finland has surpluses of wheat, feedgrain, cheese, butter, and eggs that have resulted from the Government's policy of offering attractive price supports without production controls.

Finland's unprecedented 1975 grain carryover stocks, totaling 400,000 tons (200,000 tons of wheat, 150,00 of oats, and 50,000 of malt barley) have prompted Government and farm leaders to urge shifts in 1976 crop production.

However, the country's existing system of farm price supports favors grain production over other crops, and no substantial shifts are anticipated, reports James O. Howard, U.S. Agricultural Attaché for Sweden and Finland.

Given normal weather, the 1976 grain harvest is likely to be about equal to the large 3.4-million-ton crop of 1975, thus presenting further marketing and storage problems. Government elevators are filled, and Finland's relatively high support price for wheat makes subsidies necessary for export sales.

Finland also has large surpluses of cheese, butter, and eggs. Cheese production increased by 14.6 percent in 1975, and exports rose to 21,400 tons.

The biggest markets for Emmenthal cheese were the United States, Belgium, and Italy, while the USSR and Libya were the main customers for soft cheese.

Finland's cheese exports to the United States—the biggest purchaser of Finnish cheese taking about a third or 7,000 tons of total cheese exports—face a problem.

Because of Finland's relatively high support prices for milk, cheese exports are subsidized, which appears to conflict with a U.S. law that requires the imposition of a countervailing duty in order to nullify any unfair competitive advantage provided by a subsidy.

The U.S. Treasury has issued a preliminary determination on Finland's subsidies, and a final decision on the matter is expected in June.

Butter production in Finland decreased 4.6 percent in 1975, partly as a result of the low-fat content of milk at the beginning of the year. Consumption was up by 3.2 percent. The principal export customers were the Soviet Union, Switzerland, and West Germany.

Finnish egg consumption increased slightly in 1975, but excess production is continuing and a special marketing fee will be levied on egg production to pay part of the higher subsidy cost. The fee is progressive, and applies to all poultry farms having more than 5,000 birds.

Finland's imports of food increased 17 percent during 1975, and food imports from the United States by 9 percent.

Imports of orange juice concentrate from Brazil have been increasing—mainly because of lower prices—while those from the United States have been declining. However, two Finnish companies are still participating in the Florida Citrus Commission programs, and one buys only U.S. orange juice.

The United States was the leading supplier of soybeans to Finland in 1975. Brazil's sales of soybeans to Finland were set back slightly in 1975, partly because of higher prices. China has kept its soybean deliveries stable, as agreed in its trade pact with Finland.

Imports as well as consumption of raw cotton decreased in 1975 and the short-run outlook for this commodity is not bright. Some of Finland's textile factories are operating only 4 days a week. However, export orders have increased slightly in recent weeks, and industry leaders hope for further improvement during the year. A U.S. cotton team visited Finland in November 1975, and obtained information on Finland's production of cotton textiles.

Production and consumption of meat are expected to increase during 1976. Poultry is a promising product, and consumer sales are increasing at a rapid rate. The supply of mutton will not cover domestic needs, and imports will be necessary. At present there is a surplus of pork, which needs to be exported since there is not sufficient storage space.

A 1-year price-control law became effective in February. Prices of all domestic and imported goods were frozen as of January 21 until June 30. The freeze is expected to slow imports —at least temporarily.

Top: French Prime Minister Chirac (left) and Agricultural Attaché Ogren (pointing).

Bangladesh Extends Irrigation for Rice

Bangladesh's rice production could rise from the present annual level of about 93,000 tons (paddy) to 141,000 tons by 1983, when the $30-million Karnafuli irrigation project in the southeastern part of the country is scheduled for completion.

The World Bank's International Development Association is financing $22 million of the total cost.

About 75 percent of Bangladesh's cultivated area is planted to rice, which supplies most of the country's foodgrain requirements.

Above: U.S. Holstein exhibit, showing enclosed conference rooms.

U.S. HOLSTEINS STAR IN PARIS SHOW

Nine U.S. Holstein cows and heifers were star sales representatives at the recent Paris Agricultural Show, according to Kenneth E. Ogren, U.S. Agricultural Attaché in France.

The display of U.S. Holsteins (with each animal's milk output record posted for public inspection) not only drew favorable comment from visitors at the Paris show, but—more importantly—was an influencing factor in securing commitments for a total $1.56 million worth of U.S. dairy and swine breeding stock over the next 12 months, plus an estimated $1.5-$2 million in potential sales of U.S. Holsteins, Brown Swiss, and Hereford cows, and Chester white swine over the next 24 months.

The Holstein cows and heifers on display at the show were selected by the Holstein Friesian Association of America (HFAA) and COFRANIMEX (the French import-export company) from herds of U.S. Holsteins in France.

Trade interest in U.S. Holstein breeding stock was surprisingly brisk, according to HFAA exhibitors. Inquiries of more than routine interest were received from visitors attending the Paris show from 16 countries—Portugal, Spain, Morocco, Israel, West Germany, the United Kingdom, Denmark, the Netherlands, Switzerland, Austria, Italy, Iran, Algeria, the German Democratic Republic, Tunisia, and France.

During the show's 8-day run, more than 200 persons inquired of HFAA representatives as to the performance and genetic aspects of the Holsteins on display. About 30,000 persons of the 958,000 attending the show inspected the U.S. Holstein.

An architectural aspect of the U.S. Holstein display area that was found particularly useful—and which may be incorporated in future displays—was a central conference room with glass partitions that permit direct viewing of the cattle while discussing purchase and import arrangements. The exhibitors believe the booth's arrangement was a significant factor in helping to conclude actual sales.

The National Association of Animal Breeders (NAAB) participated with representatives of four member organizations, including American Breeders' Service, the Carnation Company Genetics Division, Curtiss Breeding Service, and World Wide Sires.

The American Soybean Association (ASA) participated in the Paris show with photographs of soybeans and a display of soybeans, soybean meal, and a new soy protein lick block. The lick block, designed to supplement dairy and beef cattle feeding in the field, attracted considerable interest at the show, and several French feed compounders asked for details with the intention of eventually producing this new feed item.

The U.S. Feed Grains Council (USFGO) participated in a booth that concentrated on supplying information about the feeding of young bulls. Of the many visitors at the UCFGC booth, about 50 had special interests. Additional information and offers of technical assistance are being supplied.

World Cotton Trade

Continued from page 6

1975, U.S. and foreign prices gained over 20 cents a pound by February 1976. Rising domestic demand and the outlook for a smaller crop pushed U.S. prices up through the summer and fall while foreign prices stood still. As a result, foreign countries were able to sell the bulk of their exportable supplies by January on price considerations while the United States waited on the sidelines. Net U.S. sales between August 1 and January 1 totaled little more than 300,000 running bales.

But in December and January foreign prices caught up with those of the United States largely because of tightening supplies. With U.S. prices competitive and with this country holding most of the world's uncommitted supplies, the United States has been able to register good cotton sales since January, while competition from foreign growths has diminished somewhat.

From January 4 through May 9, U.S. cotton export sales totaled 2.1 million running bales, of which 590,000 were for delivery next season. In that period the total U.S. 1975/76 export commitment rose a net 1.2 million running bales to 3.5 million. Sales are slightly above the current FAS export estimate.

World cotton prices generally held steady in the early months of 1976, reflecting a relative equilibrium between moderate foreign demand from importing countries and moderate offers from exporting countries, chiefly the United States. But in reaction to the smaller-than-expected April 15 reports of 1976 U.S. cotton planting intentions, U.S. asking prices rose about 5 cents and foreign prices about 3 cents per pound on average through May 6.

Many U.S. and foreign mills have covered their needs through to summer and are buying for fall and even early winter delivery.

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Kuwaiti Food Show Draws Large Crowd

His Excellency Abdel Wahab Al Nefisi, Kuwaiti Minister, opens exhibit.

One hundred and thirty-one food industry representatives and key government officials from nine countries in the Far and Middle East and Europe examined, tasted, and bought U.S. food products at the USDA exhibit in the State of Kuwait, April 12-15, 1976.

Mostly from Kuwait and Saudi Arabia, but also from Bahrain, Iran, Iraq, Dubai, Oman, Lebanon, Greece, and India, these visitors were connected with the supermarket trade, or were caterers, hotel food purveyors, shipping company representatives, and government food buyers.

The 29 U.S. firms—some new to the Mideastern market—and four agricultural associations displaying at the food exhibit showed—among other items—poultry, meat, all types of canned vegetables, juices, health food drinks, soy protein products, snack items, jams, jellies, preserves, condiments, potato products, dried fruits, and nuts.

As a result of the activities of the U.S. firms, 16 agencies and 1 subagency were developed, and formation of another agency still is being negotiated. Also a new franchise was developed by a soft ice cream company.

An indication of the interest of the show's visitors was that many of them appeared bearing two printed invitations—one mailed by the Export Trade Services Division in Washington and one delivered during personal calls on the food trade by Daniel Sheppard, director of the event. Sales during the show were $650,000 with total sales of $4.8 million projected for the next 12 months.

India's 1975/76 Crops

Continued from page 4

to total around 1 million tons.

Tobacco. Total Indian tobacco output this season is currently estimated at 380,000-400,000 tons, compared with 394,800 tons in 1974/75. Some 100,000-110,000 tons of this is expected to be Virginia flue-cured, compared with 111,160 last season.

Tobacco is a major Indian export—and a competitor with U.S. tobacco in the United Kingdom and other markets. Through the first 10 months of 1975, however, exports to the United Kingdom were off 19 percent while sales to the USSR rose 35 percent. Shipments in 1974/75 brought in slightly over $100 million compared with $91 million the previous year.

Tea. Another major export crop, tea production in 1975 totaled 487,200 tons, slightly below the 1974 record of 492,000 tons. Much of the crop loss sustained in north India early last year was offset by an improved outturn in the second half. Also, the crop in south India showed an improvement over 1974 levels.

Industry sources estimate that tea exports in calendar 1975 were around 210,000 tons valued at $288 million, versus 206,000 tons at $236 million in 1974.

Coffee. Receipts of coffee by the Indian Coffee Pool are estimated at 97,500 tons in 1975/76—almost the same as in 1974/75. A carryover supply of 40,500 tons will allow the country to meet domestic demand for about 43,000 tons while maintaining the recent tempo of exports.

This export trade is producing promising results in 1975/76, with shipments forecast at a minimum 63,000 tons compared with about 60,000 last season.

*U.S. GOVERNMENT PRINTING OFFICE:1976 211-407/46 1-3